

# Male and Female Patient's Evaluation of Different Types of Restorations on the Anterior Teeth

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## Abstract

**Background:** In this sense, the beauty of smile is a correlation between teeth, gingiva, and lips. In daily clinical practice, esthetics of anterior teeth is a common presenting complaint of patients, which is affected by caries, malformation, anatomic alteration, discoloration/staining, and hypoplastic defects.

**Aims and Objectives:** The aim of the present study is to evaluate the level of patient's satisfaction with the appearance of maxillary anterior teeth restoration with regard to gender.

**Materials and Methods:** The participants were surveyed by means of a questionnaire containing questions about gender, age, and education level. The age of patients was recorded. A total of 150 subjects participated in the study (58 men, mean age 32 years; and 92 women, mean age 35 years). All participants had composite filling restorations, acrylic faceted metal crowns, porcelain-fused-to-metal crowns, or all-ceramic crowns on maxillary anterior teeth.

**Results:** Test for independent samples showed that there was a statistically significant gender difference in patients' assessment of color and surface texture for composite fillings and overall patients' average assessment score for color of all assessments ( $P < 0.05$ ).

**Conclusion:** Women in this study were less satisfied with the color and surface texture of their composite fillings and all color assessments ( $P < 0.05$ ). Their general impression of the maxillary anterior teeth restorations was lower as well ( $P = 0.054$ ).

**Key words:** Restoration, teeth, Anterior

## INTRODUCTION

The demand for esthetic dentistry has extensively increased; thus, treatment protocols for the reestablishment of a smile have been proposed aiming at well-aligned and well-contoured teeth, setting the standard for beauty.<sup>[1,2]</sup> In this sense, the beauty of smile is a correlation between teeth, gingiva, and lips.<sup>[3]</sup> In daily clinical practice, esthetics of anterior teeth is a common presenting complaint of patients, which is affected by caries, malformation, anatomic alteration, discoloration/staining, and hypoplastic

defects.<sup>[2]</sup> It is a primary consideration for patients. New dental materials and techniques were introduced maximizing the likelihood of an attractive outcome. The size and form of the maxillary anterior teeth are important not only to dental esthetics but also to facial esthetics, and so is the restoration.<sup>[4]</sup> In today's world, the patient demands optimum functional, and esthetic prosthetic restorations have increased. Therefore, replacement of teeth in esthetically demanding areas such as the maxillary anterior region not only requires restorations and prosthesis of correct form and shade but also establishment of the natural appearance of the surrounding periodontal tissues and the pink esthetic.<sup>[5]</sup> Esthetic dentistry has recently gained popularity with the esthetic factors becoming highly important. More patients seek a visually pleasing smile, and the perception in the media about the concept of beauty has improved.<sup>[6]</sup> Patients and dentists may have conflicting opinions regarding a definition of an esthetically pleasing smile.<sup>[7]</sup> The attitude toward oral health is influenced by gender, level of education, and social

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**Table 1: Significance of the gender differences in patient's assessment scores**

Parameter	t-value	Degree of freedom	P-value
Patient's average assessment score for the color of composite fillings	-3.048	138	0.002
Patient's average assessment score for the surface texture of composite fillings	-2.388	138	0.017
Overall patient's average assessment score for the color of all restorations	-1.984	138	0.045

background of patients,<sup>[8,9]</sup> which means that various groups of patients have different attitudes toward the appearance of their teeth.<sup>[10]</sup> The assessment of dental appearance, one of the most important aspects of dental esthetics, often refers to the six maxillary anterior teeth as the most visible ones during communication, speech, functioning, and smiling.<sup>[11,12]</sup> Rating is influenced by a variety of different factors determining a harmonious interaction of dental and gingival beauty, tooth color, size, and shape of teeth, as well as the visibility of the teeth and soft-tissue gums at rest and as when smiling.<sup>[13,14]</sup> The agreement between the perception of subjects and clinical assessment of esthetic dental treatment need was found to be very low, which highlighted discrepancies between the perception of patients and dentists for esthetic needs.<sup>[15]</sup> Patients' perceptions and expectations regarding their appearance play a significant role in treatment planning.<sup>[16]</sup> The patient's attitude toward dental appearance proved to be very important and should be acknowledged in dental treatment decisions.<sup>[17,18]</sup> Resin composite restorations represent a good treatment choice for severely damaged teeth, but their durability is questionable due to discoloration, marginal fracture, and wear.<sup>[19,20]</sup> Many studies have proven that all-ceramic restorations offer a predictable and successful restoration.<sup>[21-23]</sup>

The aim of the present study is to evaluate the level of patient's satisfaction with the appearance of maxillary anterior teeth restoration with regard to gender.

## MATERIALS AND METHODS

Maxillary anterior teeth restorations (composite fillings, and different types of fixed conventional prosthodontic appliances) in patients attending the Department of Conservative Dentistry and Endodontics, Institute of Dental Sciences, Sehora, Jammu, India, were examined. The patients with no restorations in this region and those with periodontal and serious tooth mobility problems in the maxillary anterior region were excluded from the study. The participants were surveyed by means of a questionnaire containing questions about gender, age, and education level. The age of patients was recorded. A total of 150 subjects participated in the study (58 men, mean age 32 years; and 92 women, mean age 35 years). All participants had composite filling restorations, acrylic faceted metal crowns, porcelain-fused-to-metal crowns, or all-ceramic crowns on maxillary anterior teeth.

**Table 2: Significance of the gender differences in the patient's general impression of their restorations**

Parameter	$\chi^2$ value	Degree of freedom	P-value
Gender	3.705	1	0.055

Patients evaluated the color, anatomical shape, and surface texture of maxillary anterior teeth restorations in comparison to adjacent natural teeth on a visual analog scale from 1 to 3. Score 1 meant that the patient was completely satisfied with the characteristics, thus giving a good grade. Score 2 meant that the patient was moderately satisfied with the characteristics and evaluated it as satisfying. Score 3 meant that the patient was completely dissatisfied with assessed restoration characteristic in relation to the natural tooth and evaluated it as bad. Finally, patients assessed the general impression of their maxillary anterior teeth restorations and rated it as satisfactory (Score 1) or non-satisfactory (Score 2). The data were expressed in patients' average assessment scores for color, anatomical shape, and surface texture as well as overall patients' average assessment scores for every type of restoration and the overall patients' average assessment scores for color, anatomical shape, and surface texture of all the restorations in general. Ethical clearance was obtained from the ethical committee. The patients also assessed their general impression of restorations. The statistical analysis was made using the statistical software SPSS 10.0 for Windows. *t*-test for independent samples, Chi-square test, and logistic regression analysis were performed.

## RESULTS

*t*-test for independent samples showed that there was a statistically significant gender difference in patients' assessment of color and surface texture for composite fillings and overall patients' average assessment score for color of all assessments ( $P < 0.05$ ) [Table 1]. The results showed that, in this study, women were more dissatisfied with the general impression of their restorations on the upper teeth than men. Chi-square test showed that this difference almost reached the level of significance ( $P > 0.05$ ) [Table 2]. The results showed that only the independent variable for overall patients' average assessment score for composite restorations almost reached the level of significance ( $P = 0.068$ ) [Table 3].

**Table 3: Significant predictors on the patient's general impression of their restorations**

Parameter	B coefficient	Standard error	Degree of freedom	Level of significance	Exponential b coefficient
Overall patient's average assessment score for composite fillings	0.852	0.465	1	0.068	2.340

## DISCUSSION

Numerous factors are related to dental esthetics, such as the color and the shape of the teeth as well as the shape of the dental arch.<sup>[24]</sup> These factors are affected by individual preferences,<sup>[25,26]</sup> cultural factors,<sup>[27]</sup> and socio-demographic factors.<sup>[28,29]</sup> The appearance of the teeth could be influenced by gender,<sup>[3,4]</sup> age,<sup>[30-33]</sup> and education level.<sup>[34-37]</sup> Perceived dental treatments on anterior teeth also have an impact on dental esthetics.<sup>[38,39]</sup> In this study, participating patients had a total of 260 composite fillings and 113 crowns on maxillary anterior teeth, with 51 acrylic faceted metal crowns, 34 porcelain-fused-to metal-ceramic crowns, and 28 all-ceramic crowns. The patients compared maxillary anterior teeth dental restorations with the appearance of the adjacent natural teeth for color, shape, and surface texture and evaluated their matching. These criteria defined rating scales for judgment of clinically important characteristics for dental restorations, and they were designed to reflect esthetic qualities and functional performance of restorations fabricated from a variety of dental restorative materials<sup>[40]</sup> as in a study by Efes *et al.* who did the same research.<sup>[20]</sup> Perception of tooth color is a complex phenomenon that is influenced by many factors, including lighting conditions, the optical properties of teeth (translucency, opacity, scattering of light, and surface gloss), and the viewer's visual experience.<sup>[40]</sup> *t*-test for independent samples in this study showed that there was a statistically significant gender difference in the assessment of color and surface texture of composite fillings as well as in overall average assessment grade for color with women being less satisfied ( $P < 0.05$ ). First of all, it seems that the color of the natural teeth and restorations in this study plays an important role in the assessment of the patient's appearance of maxillary anterior teeth and this is in accordance with recent studies which show that the tooth color is one of the most important factors determining satisfaction with dental appearance.<sup>[39]</sup> In general, people wish to have pearly white teeth.<sup>[40]</sup> Samorodnitzky-Naveh *et al.* have proven that laypeople evaluate their teeth darker than professionals, and women assessed tooth shades more accurately than men.<sup>[40]</sup> Dental appearance is an important feature in determining the attractiveness of the face and thus plays a key role in human social interactions. The media and mass communication have provided an opportunity for educational awareness of alternative esthetic materials. Today, patients are no longer satisfied with restorative

solutions that provide ideal function without displaying restorations of beautiful and natural looking teeth. A patient's preference toward a lighter shade should be addressed during treatment planning to match the patient's expectations for esthetics and increases patient satisfaction of the treatment outcome.<sup>[39]</sup> Furthermore, the results of this study also showed that gender had an impact on the assessment of maxillary teeth and restorations – it showed that women were less satisfied with it than men ( $P < 0.05$ ), many other studies showed the same results.<sup>[40]</sup> Some of them showed that women were reported to be more sensitive to the appearance of the teeth than men, and the importance of teeth decreased with aging<sup>[35]</sup> and higher education levels, and these two additional factors are going to be discussed in our next study. It is also known that the female gender is the main predictor for seeking dental therapy. Their self-esteem could be affected by physical injuries more than in males. However, despite numerous proofs that women are more demanding in terms of dental esthetics, there are studies that did not find a statistically significant difference.<sup>[34]</sup> The results of this study also showed that only the average patients' rating of composite restorations is the predictor of the patients' general impression of the appearance of their maxillary anterior teeth with the impact of 5% (coefficient of determination  $R^2 = 0.05$ ) and the level of significance of 0.069. According to this result, it seems that the type of restoration is important in patient's self-assessment of maxillary anterior teeth restoration appearance and overall satisfaction with dental esthetics. Composite restorations could lead to successful esthetic outcomes if adequate techniques are applied. On the other hand, properties of dental ceramic are better color stability, mechanical strength, clinical longevity, esthetic appearance, and compatibility with periodontal tissues in comparison with composite materials.

## CONCLUSION

Women in this study were less satisfied with the color and surface texture of their composite fillings and all color assessments ( $P < 0.05$ ). Their general impression of the maxillary anterior teeth restorations was lower as well ( $P = 0.054$ ). Logistic regression analysis showed that the independent variable for overall patients' average assessment score for composite restorations almost reached the level

of significance ( $P = 0.069$ ) as the impact predictor of 5% (coefficient of determination  $R^2 = 0.05$ ) on the patients' general impression (exponential coefficient of 2.343 and a confidence interval 0.936–5.865). Comprehension of past dissatisfaction with esthetics of oral cavity and dental procedures and prevalence of esthetic characteristics of dissatisfied patients as well as understanding the wishes for future dental treatments and improving esthetics can be guide to develop strategies of new procedures designed to improve dental esthetics.

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